F A C T S H E E T

Mulberry - A Valuable Feed Resource

Mulberry (*Morus* spp.), is a perennial forage that belongs to the Moraceae family and has been used for centuries in the silk industry (sericulture) of China to feed silk worms (*Bombyx mori*). Several species belong to this family, including *M. alba*, *M. nigra*, *M. indica*, *M. laevigata* and *M. bombycis*. In addition to its use in sericulture, the mulberry is also appreciated for its fruit, as a delicious vegetable, for its medicinal properties in infusions, for landscaping and as animal feed. The plant originated in temperate regions, but is now also found in the tropics and semi-arid lands of the Near East. Because of this capacity of the plant to adapt to different climates and altitudes it has been described as being 'cosmopolitan' in nature.

Propagation

Establishment is by stem cuttings (stakes) or seed. Stakes should be obtained from mature branches and cut into 15 cm long pieces with no less than 3 buds (Benn, 2002). These may either be planted directly into the ground, or cuttings may be set in grow bags filled with a soil medium. Mulberry is best used in legume mixes with N-fixing capabilities since high nitrogen levels in soils will improve mulberry growth (Sanchez, nd).

Harvesting

The preferred method of harvesting for ruminant feeding is branch cutting, but leaves have been collected and dried in some studies. Conservation by ensiling has also been achieved.

Nutrient requirements

All the nutrients required for mulberry growth **MUST** come from the soil because there is no N-fixation. In pure stands inorganic or organic fertilisers (e.g. animal manure) are needed to replenish the nutrients removed. Fertiliser (12:24:12) should be applied at a rate of 200 kg/ha at planting, followed by 20:10:10 (250 kg/ha) one month after planting. Additional fertiliser should be applied after every harvest at the same rate (Benn, 2002).

Nutritive value and palatability

Mulberry is a highly nutritious forage. The crude protein content generally varies from 15 – 20%, depending on the variety, age of the plant and growing conditions. In Jamaica for example, values of 23% have been reported by McDonald (2003), while Sanchez (nd) has reported values as high as 28%. In studies which CARDI conducted at the Sugarcane Feeds Centre, Trinidad with rabbits fed mulberry, the mean protein content of the plant was found to be 19%. The production of leaf and total dry matter/ha of mulberry depends on a number of factors such as location, plant density, soil fertility, variety and harvesting technique. Under average conditions mulberry is expected to yield 10 tonnes of dry matter/ha/year. The mulberry plant is highly digestible (70 – 90%) and very palatable. The mineral content can be as high as 25%. Small ruminants for example, eagerly consume the fresh leaves and the young stems first, even if they have never been exposed to it before.

Animal performance

In trials conducted in Costa Rica, milk production increased with the levels of mulberry offered to goats on a King grass (*Pennisetum purpureum*, cv. king grass) diet. In another trial, liveweight gains of bulls increased to over 900g/day when mulberry was offered as a supplement at 1.7% of body weight on a DM basis (Sanchez, nd). When a commercial concentrate fed to growing pigs was replaced by up to 20% of mulberry leaf in the diet, daily gains increased from 680g/day to

740 g/day. In rabbits, the reduction of concentrate from 100 g/day to 17.5 g/day offered with ad libitum fresh mulberry, only reduced gains from 24 to 18 g/day, but reduced the cost of the meat produced by more than half. Although the results of studies conducted in Trinidad with rabbits were inconclusive with respect to weight gains and animal performance in general, the value of this alternative feed resource cannot be overlooked and further research is warranted (Hosein, 2004)

Environmental benefits

The mulberry tree is an excellent plant for landscaping in an urban environment (Mc Lean, 2001). Trees, when properly used in a landscape can increase property values by as much as 5 – 20 % (International Society of Arboriculture, 2003). In addition, they provide food and shelter for birds and urban wildlife, and play a critical role in improving air quality by trapping dust, absorbing air pollutants and converting carbon monoxide to oxygen.

References

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